

Fig. 1(a)

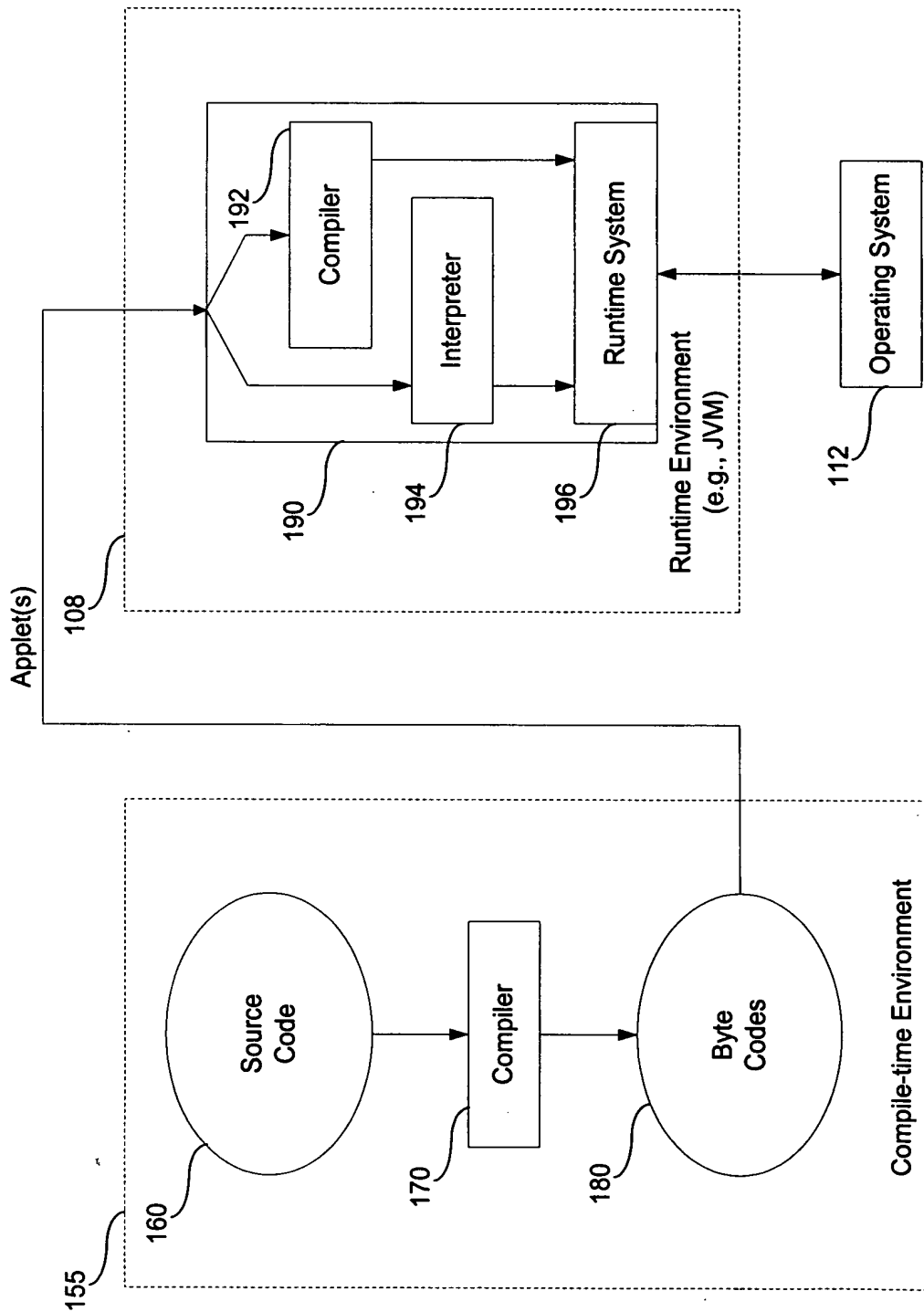


Fig. 1(b)

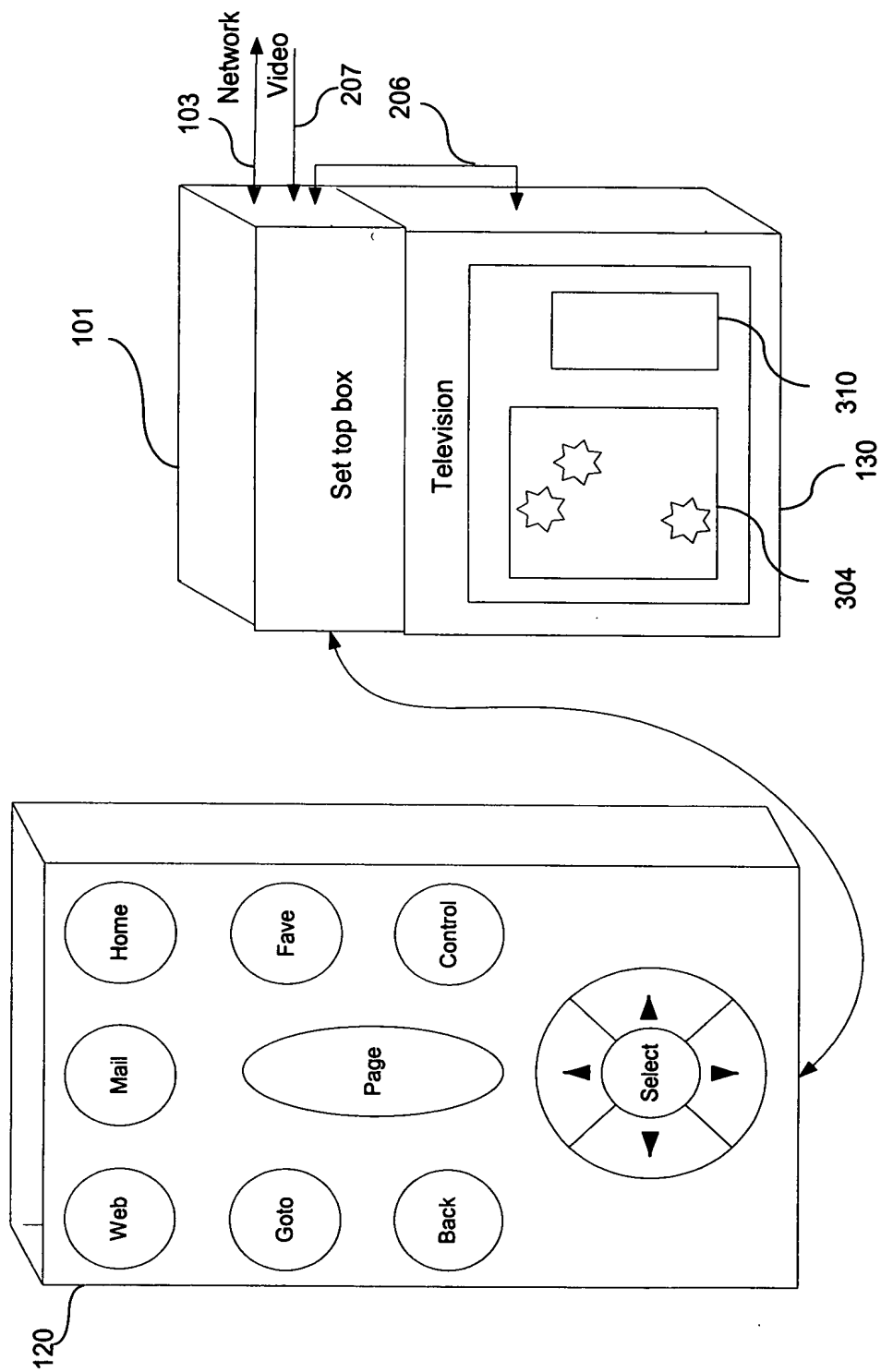
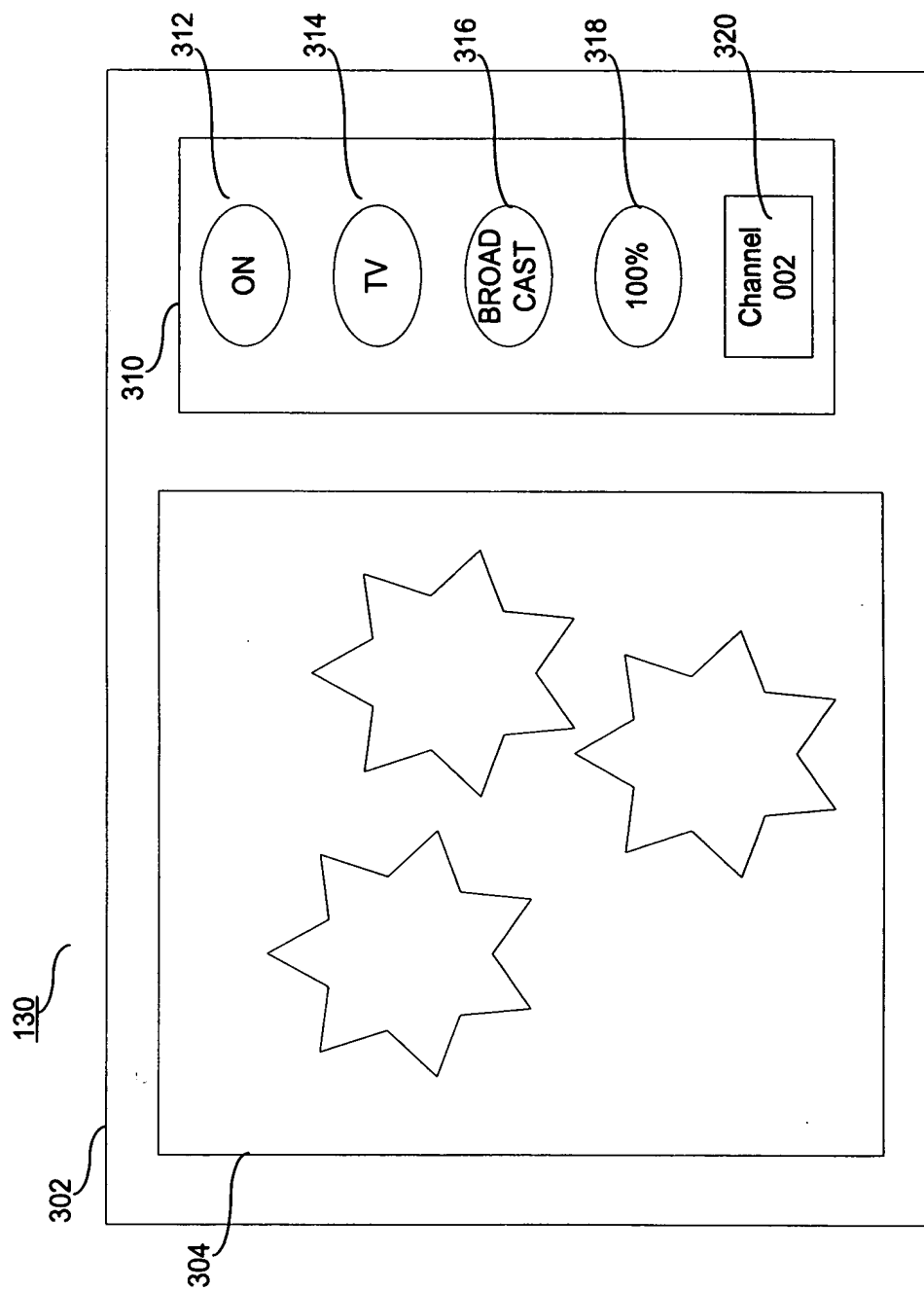
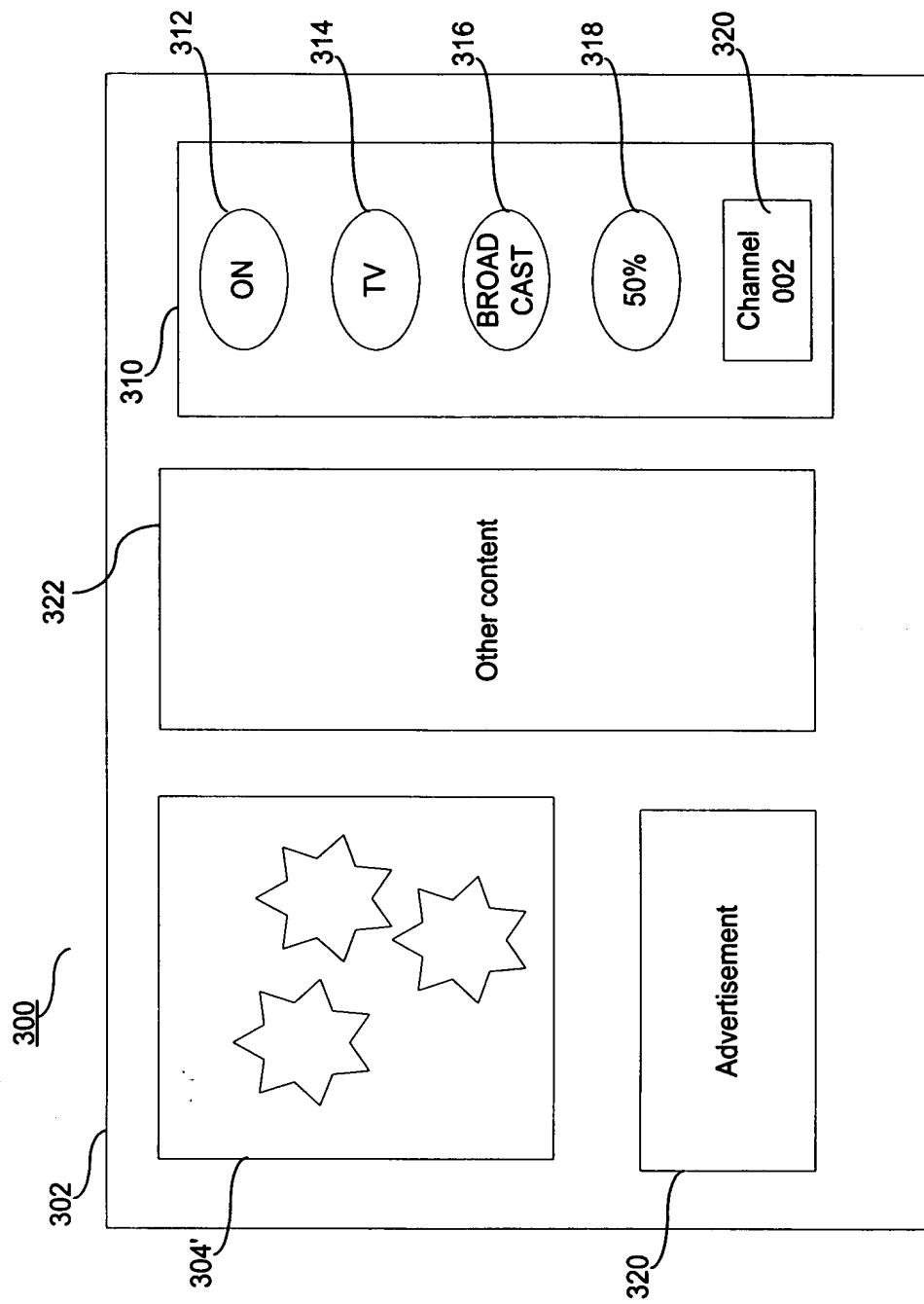


Fig. 2



**Fig. 3(a)**  
Example of a Web page with virtual  
controller and displayed video content



**Fig. 3(b)**  
 Example of a Web page with virtual  
 controller and displayed video content

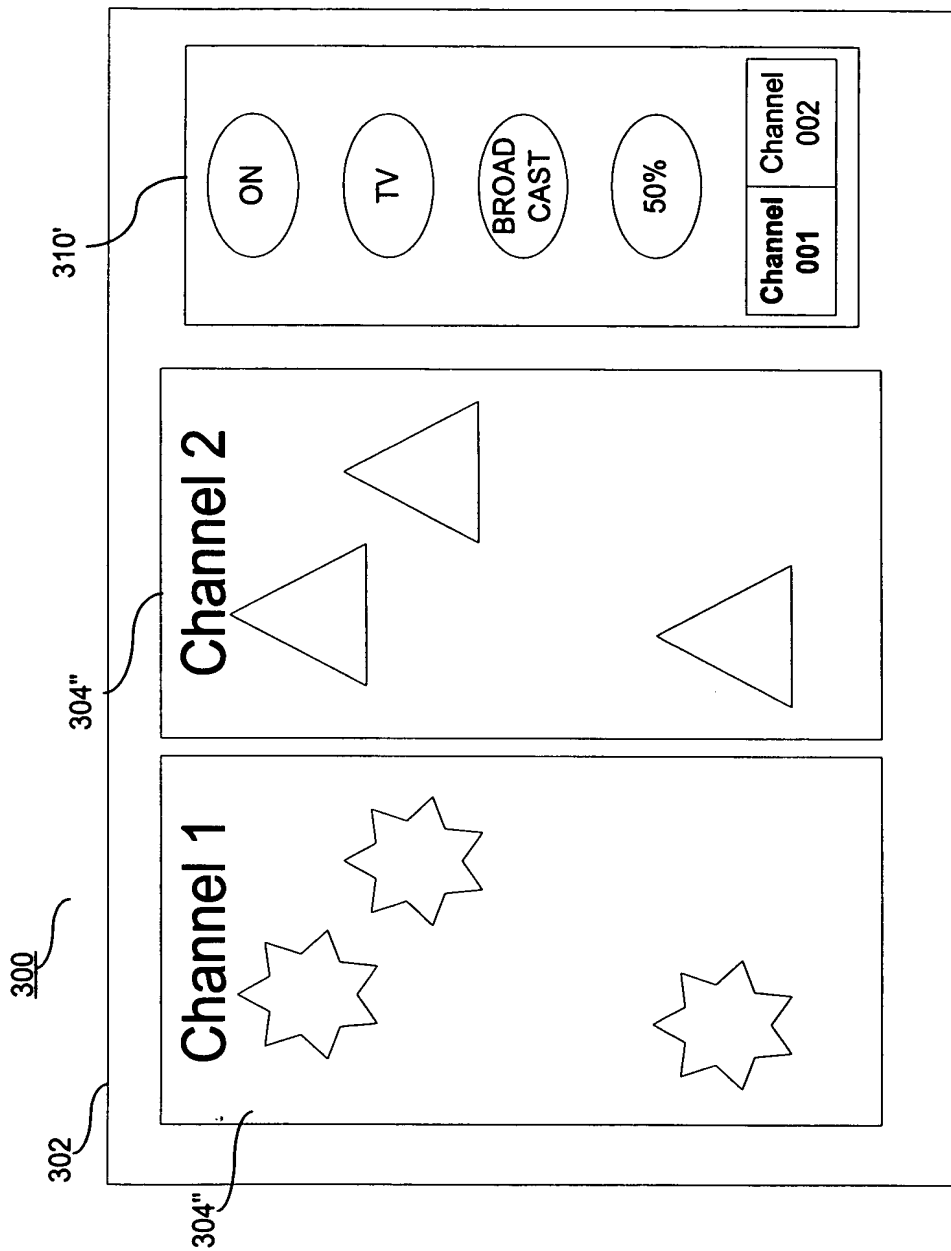
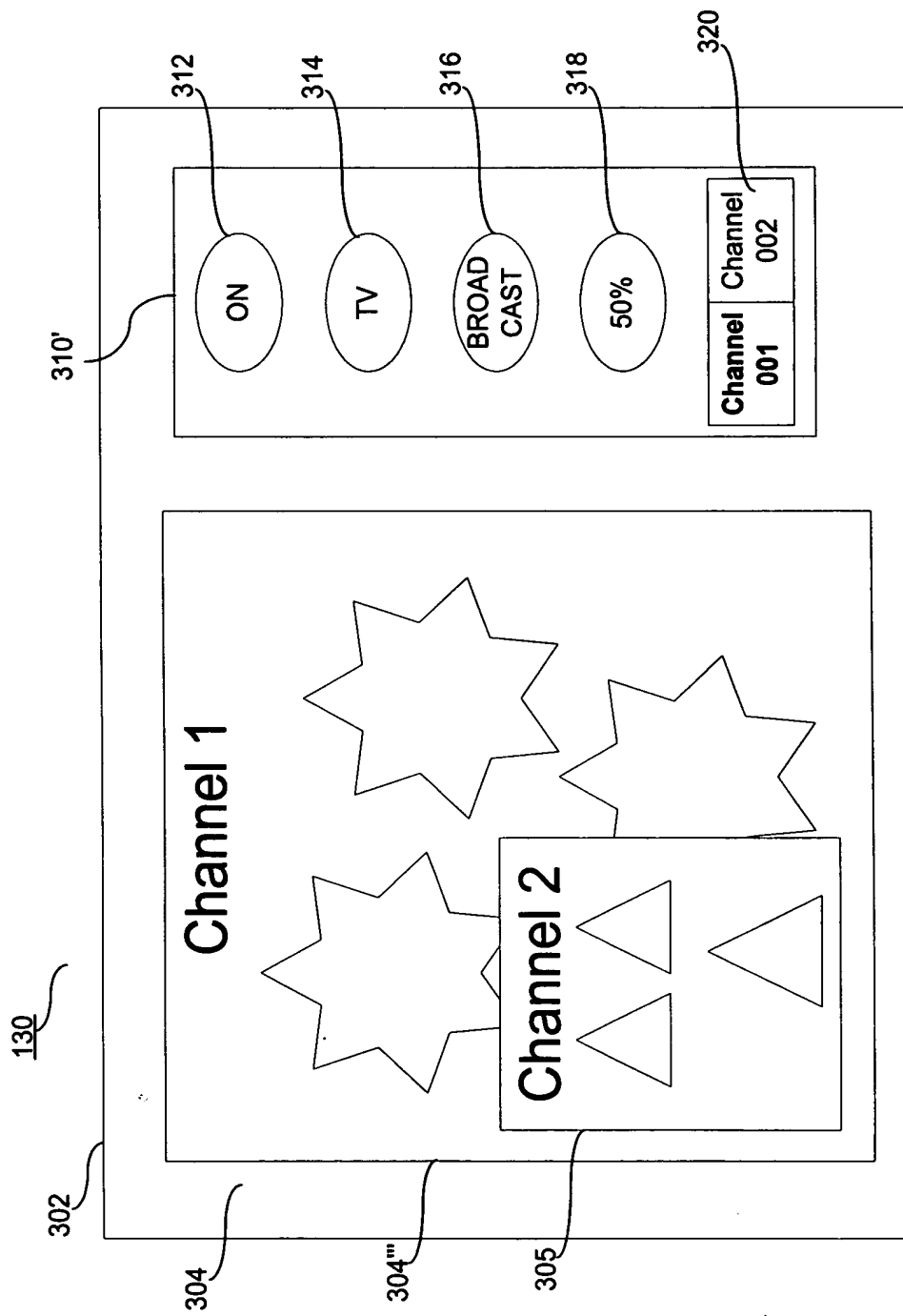


Fig. 3(c)  
Example of a Web page with virtual  
controller and displayed video content



**Fig. 3(d)**  
 Example of a Web page with virtual  
 controller and displayed video content

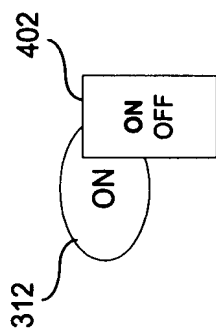


Fig. 4(a)

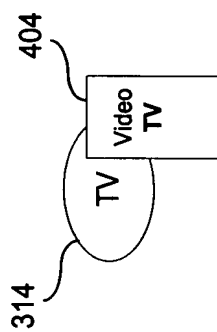


Fig. 4(b)

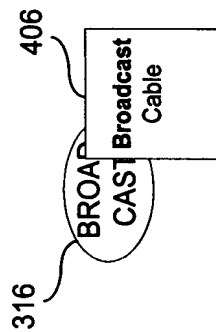


Fig. 4(c)

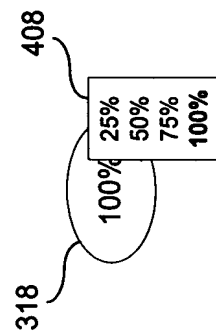


Fig. 4(d)



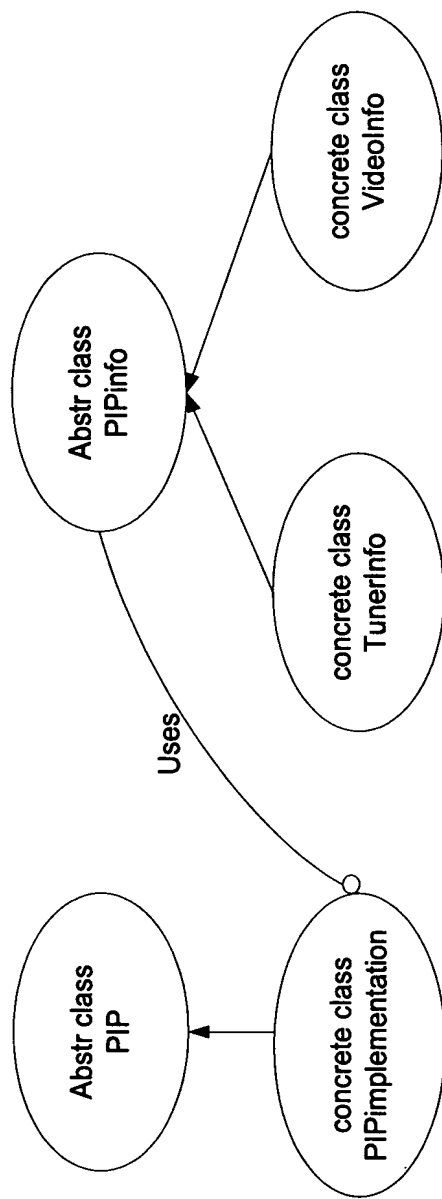


Fig. 5(a)

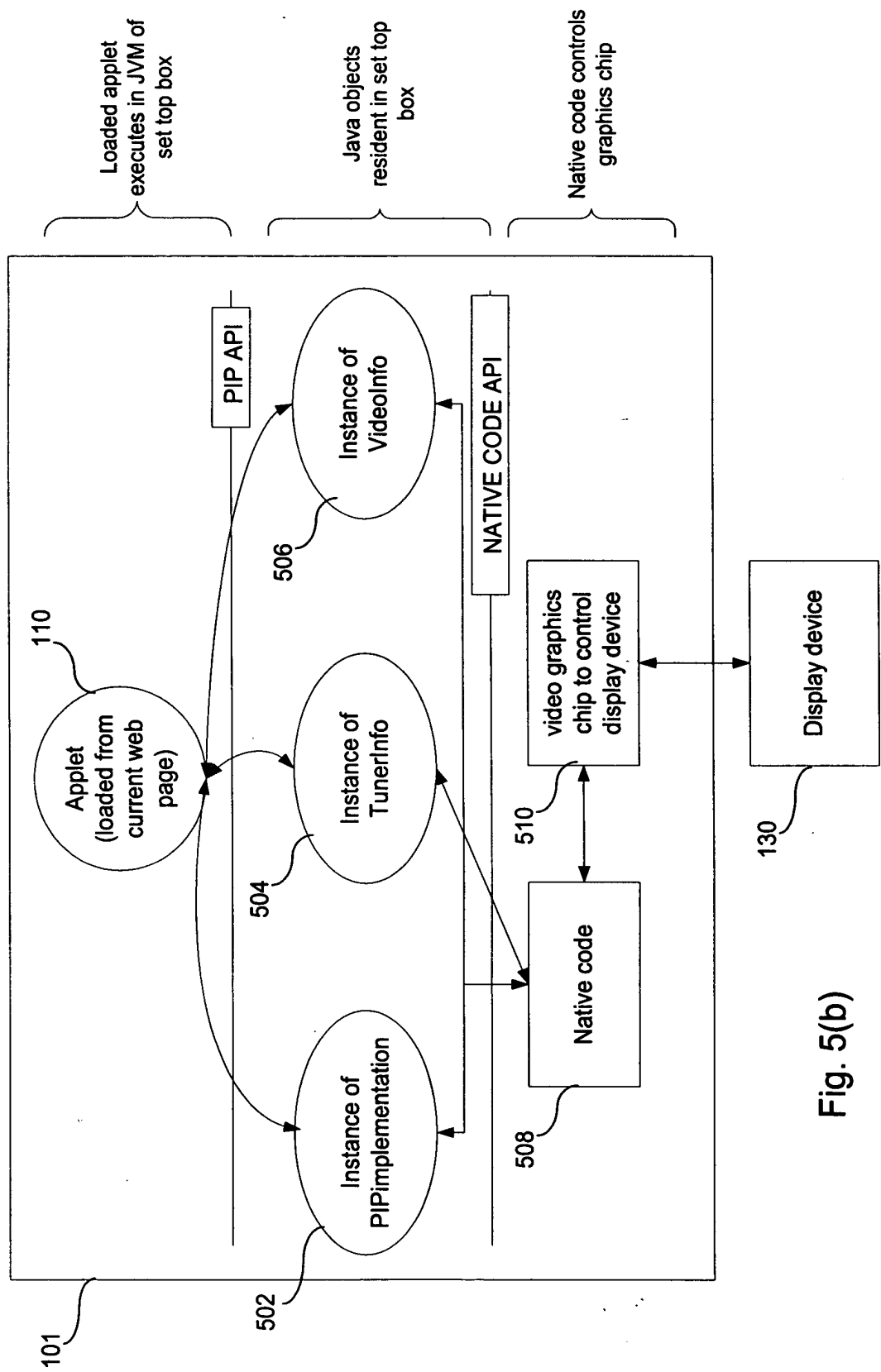


Fig. 5(b)

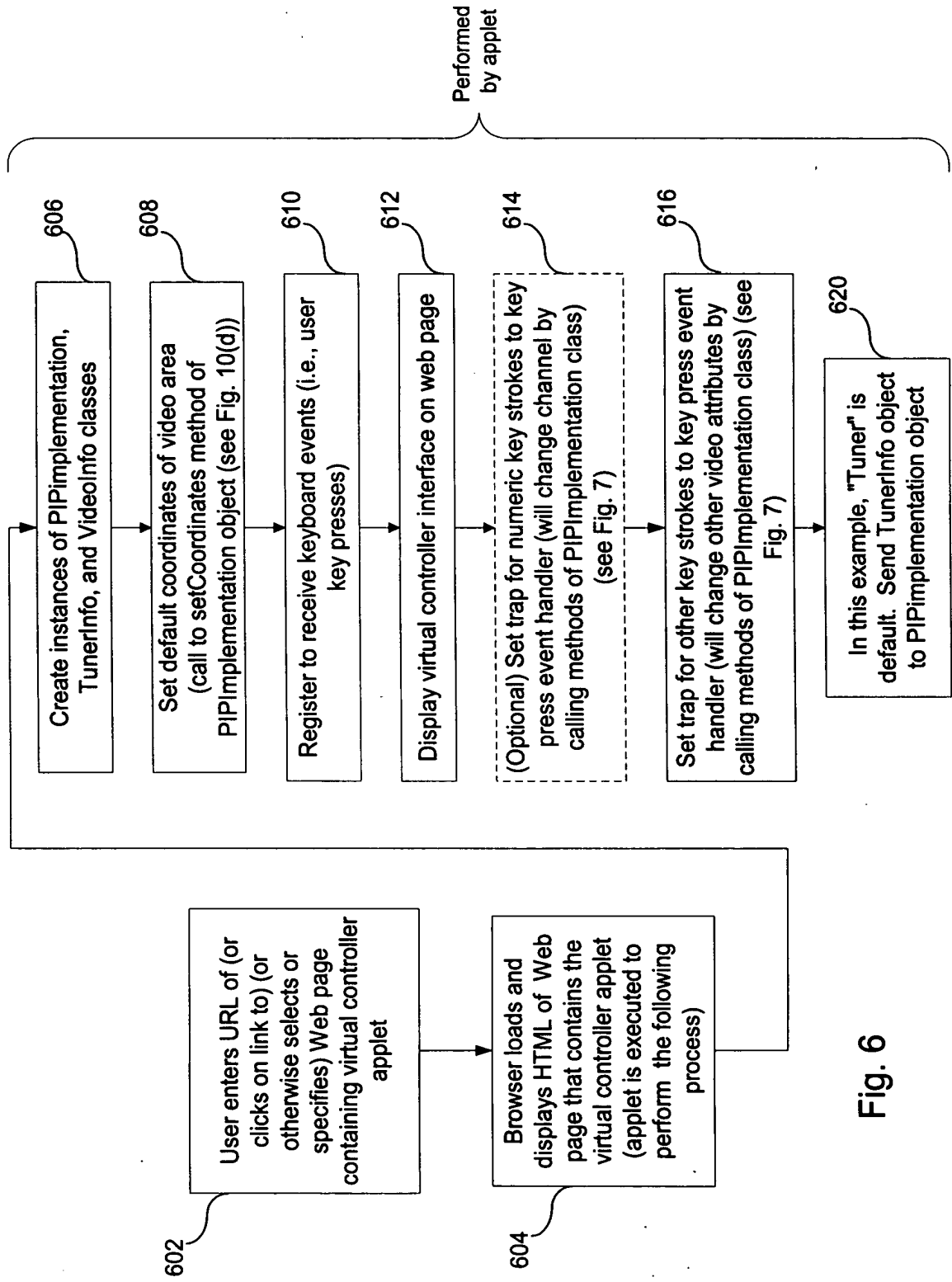


Fig. 6

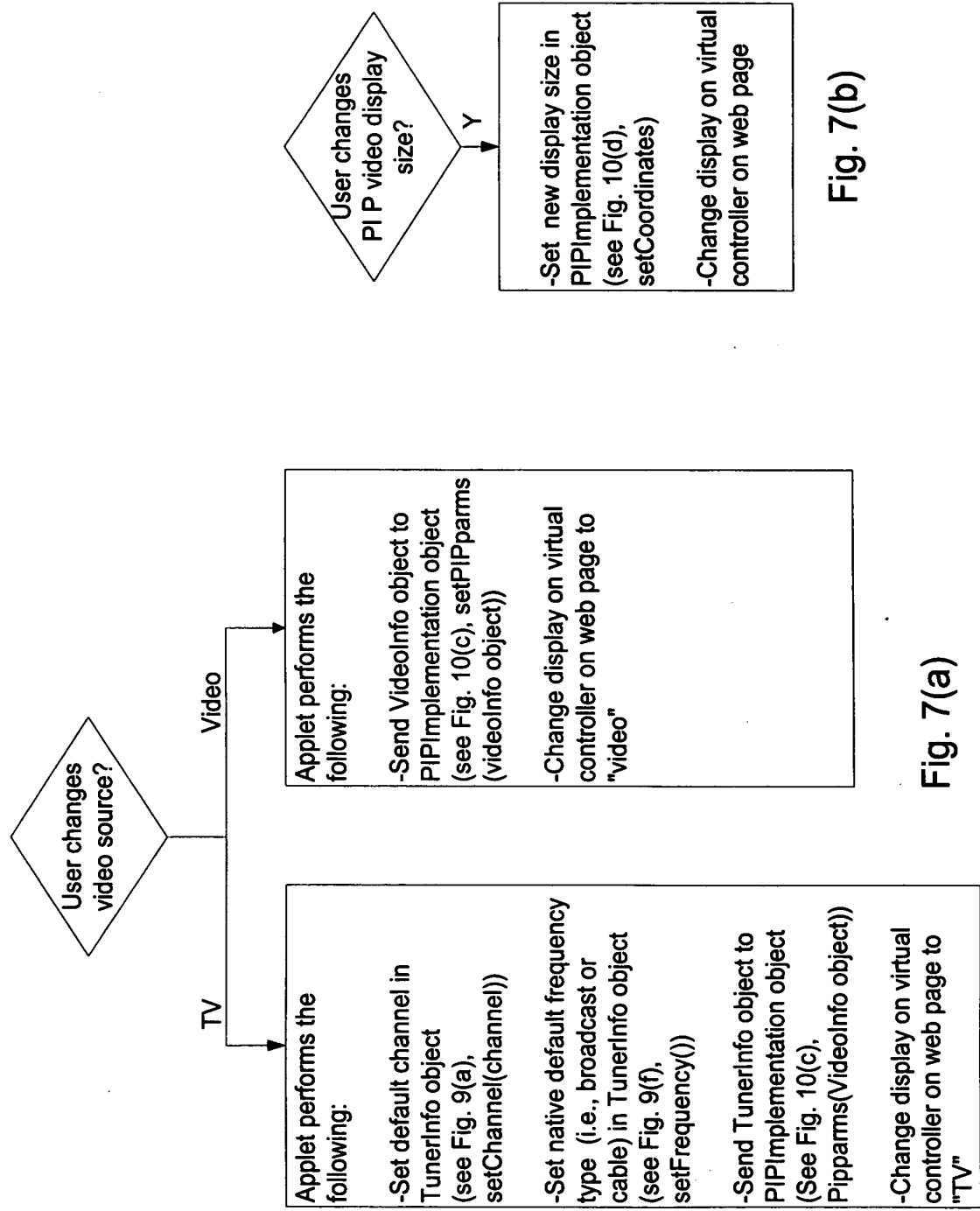


Fig. 7(a)

Fig. 7(b)

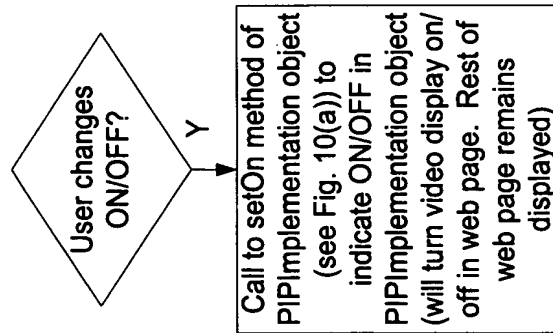


Fig. 7(c)

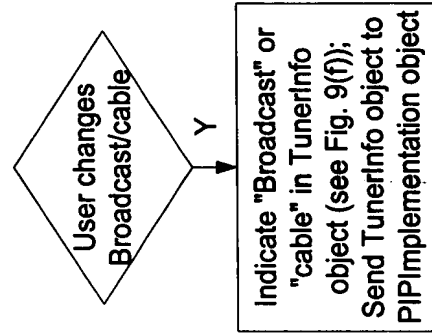


Fig. 7(d)

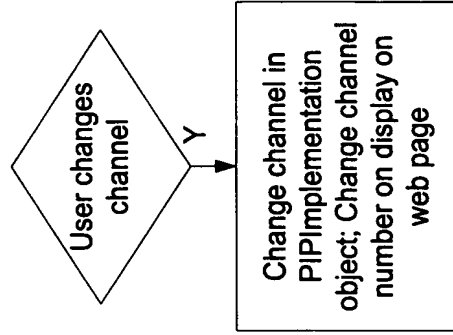


Fig. 7(e)

PIPinputType (here, has a value of Tuner)
Coordinates of video display
Frequency Type (either broadcast or cable)
Channel
Methods (See Figs. 9(a)-9(f)) public void setTunerInfo (channel, frequency) public rectangle getDefaultCoordinates() public int getChannel() public void setChannel(channel) public int getFrequencyType() public int setFrequencyType(frequency)
Native methods/functions called: nativeGetDefaultCoordinates nativeGetDefaultChannel nativeGetDefaultFrequency

**Fig. 8(a)**  
**Example TunerInfo object**

PIPinputType (here, has a value of Video)
Coordinates of video display
Methods (see Figs. 9(g)-9(h)): public void setVideoInfo() public rectangle getDefaultCoordinates()
Native methods/functions called: nativeGetDefaultCoordinates

**Fig. 8(b)**  
**Example VideoInfo object**

<p>Methods (see Fig. 10)</p> <pre> public void setOn(boolean switchItOn) public boolean getOn() public void pipParms(pipparms pipparms) public void setCoordinates (rectangle coordinates) public Rectangle getCoordinates() public void setPipInfo(PipInfo pipInfo) </pre>	<p>Native methods/functions called:</p> <pre> nativeSetCoordinates nativeGetCoordinates nativeGetChannel nativeSetChannel nativeGetFrequency nativeSetFrequency nativeSetinputType nativeGetInputType </pre>
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**Fig. 8(c)**  
**Example PIPImplementation object**



Store channel, frequency, and default coordinate values into TunerInfo object (Note that channel and/or frequency can also default by calling native code to obtain default values)

Fig. 9(a)

public void setTunerInfo(channel, frequency)

Return channel number from TunerInfo object

Fig. 9(c)

public int getChannel()

Instantiate a new rectangular panel;  
Call native method to obtain default coordinates on display;  
Return coordinates

Fig. 9(b)

public rectangle getDefaultCoordinates()

Store channel in TunerInfo object

Fig. 9(d)

public void setChannel(channel)

Return frequency type from  
TunerInfo object

Fig. 9(e)

public int getFrequencyType()

Store default coordinate values  
into VideoInfo object (Note that  
rectangle coordinates can also be  
passed in as a parameter)

Fig. 9(g)

public void setVideoInfo()

Store frequency type in  
TunerInfo object

Fig. 9(f)

public void setFrequencyType(frequency)

Instantiate a new rectangular  
panel;  
Call native method to obtain  
default coordinates on  
display;  
Return coordinates

Fig. 9(h)

public rectangle getDefaultCoordinates()

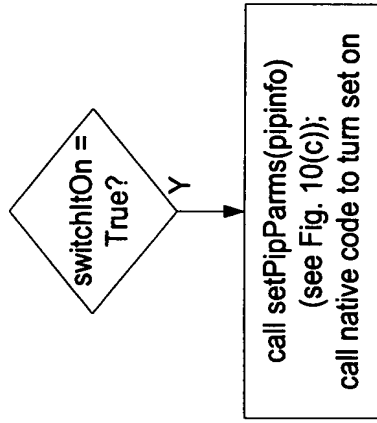


Fig 10(a)

public void setOn(boolean switchItOn)

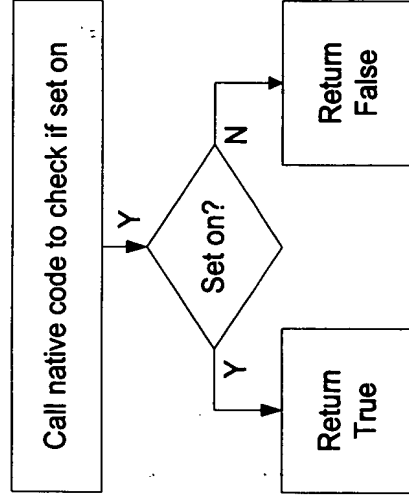


Fig 10(b)

public boolean getOn()

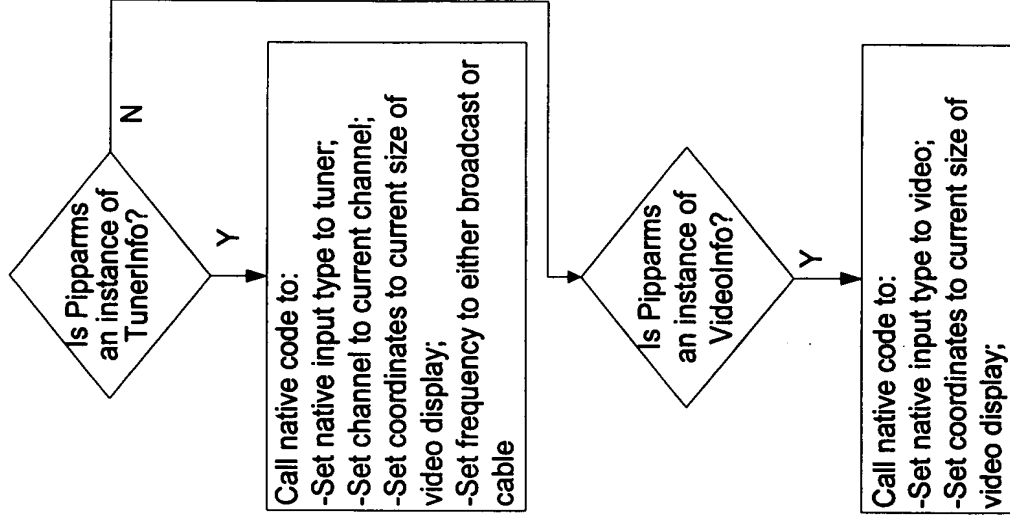


Fig 10(c)

public void pipParms(pipparms pipparms)

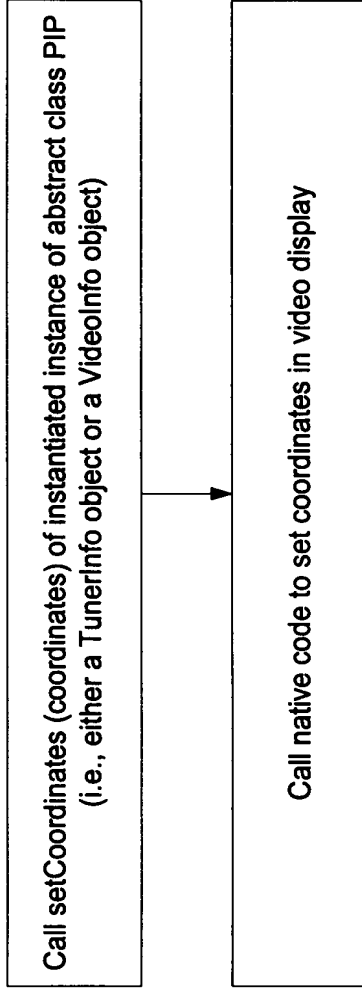


Fig. 10(d)  
public void setCoordinates (rectangle coordinates)

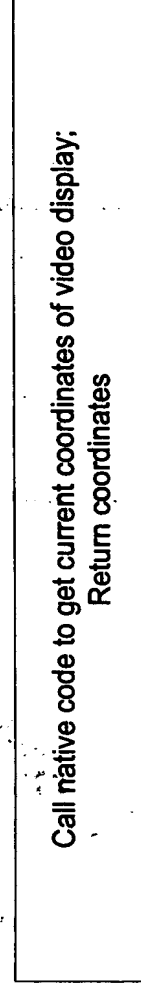


Fig. 10(e)  
public Rectangle getCoordinates ()

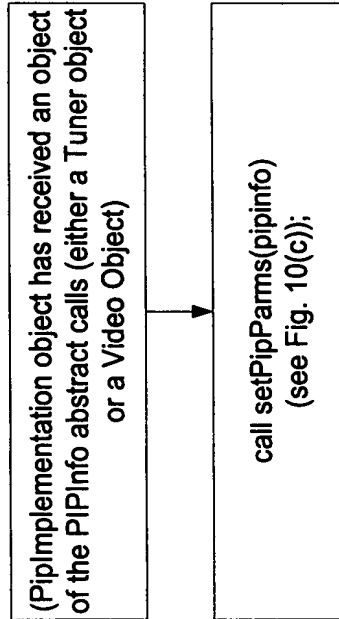


Fig. 10(f)  
public void setPIPInfo(pipInfo  
pipInfo)

```

private native void nativeSetOn(boolean onOrOff);
private native int nativeGetOn();

private static native void nativeSetCoordinates(Rectangle rect);
private static native void nativeGetCoordinates(Rectangle rect);

private static native int nativeGetChannel();
private static native int nativeSetChannel(int channel);
private static native int nativeGetFrequency();
private static native void nativeSetFrequency(int frequency);

private static native void nativeSetInputType(int videoOrTuner);
private static native void nativeGetInputType();

private static native void nativeGetDefaultCoordinates (Rectangle rect);
private static native int nativeGetDefaultChannel();
private static native int nativeGetDefaultFrequency();

```

**Fig. 11**  
**Native code API**

1202

```
<title>Virtual video controller</title>  
<body bgcolor=000000 text=cc000 link=fffff vlink=fffff alink=fffff>  
<applet code=virtualcontrollerapplet ALIGN=right width=100 height=300 vspace=20>  
</applet>
```

Fig. 12

Example HTML for a Web Page  
containing virtual controller applet